

REMARKS

Claims 1-17 and 21-25 are pending. The Office Action of October 11, 2001, has been carefully considered. Applicants appreciate the Examiner's indication that Claims 4-6 are allowable over the prior art. New Claims 21-25 have been added to further define the protection to which applicant is entitled. Applicant requests that the Examiner consider the above amendments and the following remarks, and pass the application to allowance.

RESPONSE TO DETAILED ACTION:

Response to 35 U.S.C. §102 Rejections:

Claims 1-3 were rejected under 35 U.S.C. §102(b) as being anticipated by Muir (U.S. Patent No. 1,655,158).

Claim 1 as amended recites a trocar including a cannula for receiving an implant and inserting the implant into an animal, a spring element entirely received within the cannula, and an obturator for delivering the implant from the cannula into the animal. The cannula has a sharp tissue penetrating distal end. The spring element has a leaf spring for retaining the implant inside the cannula, and applies a frictional force against the implant sufficient to prevent the implant from sliding out of the cannula under a weight of the implant.

Muir discloses an instrument for implanting radon seeds. The instrument includes an implanter, a trocar, and a plunger. The implanter is a tubular body having a bore extending through the tubular implanter. A counter-sunk groove communicates with the bore, and functions as a loading slot for the insertion of radon seeds. A spring or means of forcing the seed into the implanter is mounted to the outside of the implanter and passes through a spring receiving channel located adjacent to a sleeve-receiving member. The sleeve receiving member forms a shoulder with the tubular body and a shoulder with the

loading slot. In operation, the seed is loaded into a counter-sunk groove or loading slot. The instrument is inserted into the tissue to be treated, and the trocar is removed from the implanter. As the trocar is withdrawn from the implanter, the trocar passes the loading slot, and the seed is pushed into the bore by the spring. The plunger is thereafter introduced into the bore of the implanter and the seed is deposited into the tissue.

Muir, however, does not teach or suggest a spring located entirely within the cannula for retaining the implant inside the cannula. Rather, the spring is mounted to the outside of the implanter and passes through the spring receiving channel. Accordingly, Claim 1 should be allowable. Claims 2 and 3 are dependent on Claim 1 and should also be allowable.

Claims 1, 2, 8, 19 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by Harris (U.S. Patent No. 421,072 A).

Harris relates to a surgical applicator having a tube and a plunger. The tube has movable jaws fixed to the nozzle end of the tube and adapted to be opened by the plunger.

Harris, however, does not teach or suggest a surgical applicator having a sharp tissue penetrating distal end. Rather, the tube (or surgical applicator) is "of thin metal and its nozzle end is slightly tapered and rounded off, as shown at *e*, **so as to be free from sharp corners**" (emphasis added).¹ Thus, Claim 1 should be allowable. Claims 2 and 8 are dependent from Claim 1, and should also be allowable. Claims 19 and 20 have been canceled without prejudice or disclaimer of the subject matter contained therein.

¹ Page 1, lines 62-64.

Claims 9-16 were rejected under 35 U.S.C. §102(b) as being anticipated by Utterberg (U.S. Patent No. 5,536,259).

Claim 9 recites a trocar including a substantially cylindrical cannula body. The trocar has a distal end of the cannula body having a leading edge formed by a first plane which is at a first angle with respect to a longitudinal axis of the cannula body, and a trailing edge formed by a second plane which is at a second angle with respect to the longitudinal axis of the cannula body. The first angle of the **leading edge** is larger than the second angle of the **trailing edge**.

Utterberg discloses a hypodermic cannula having a first end formed by a first cut surface 12 (**trailing edge**) defining an acute angle to the longitudinal axis. The first cut surface 12 (**trailing edge**) defines an acute angle of about **20 degrees** with the longitudinal axis of the cannula.² A second cut surface 20 (**leading edge**) is defined along a right hand forward portion of the oval tube edge at a **14½ degree angle**.³ A third cut surface 26 (**leading edge**) is defined along a left hand forward portion of the oval tube edge at a similar angle to the second cut (14½ degrees). The second cut and third cut surfaces define between them a forward cutting surface (**leading edge**) in the tube edge. A fourth cut surface 30 at the point intersects the second and third cut surfaces to cause the cutting surface to be spaced inwardly of the tube outer wall.

As disclosed in the specification,⁴ the angle of the forward cutting surface (**leading edge**) is less than the angle of the **trailing edge**. Thus, Utterberg does not suggest or teach that the "first angle of the **leading edge** is larger than the second angle of the **trailing edge**" as recited in Claim 9 of the present invention. Furthermore, it would not have been

² Col. 3, lines 1-5.

³ Col. 3, lines 7-13.

⁴ Col. 3, lines 1-13.

obvious to one skilled in the art to modify Utterberg to change the angle because a larger angle on the leading edge would make a less sharp tip which is undesirable for a hypodermic cannula intended to penetrate tissue with minimal pain. Accordingly, Claim 9 is not anticipated by Utterberg, and should be allowable.

Claims 10 and 12-16 are dependent on Claim 9, and should also be allowable.

Claim 11 recites a trocar including a substantially cylindrical cannula body. The trocar has a distal end of the cannula body having a leading edge formed by a first plane which is at a first angle with respect to a longitudinal axis of the cannula body, and a trailing edge formed by a second plane which is at a second angle with respect to the longitudinal axis of the cannula body. **The first angle of the leading edge is larger than the second angle of the trailing edge.** In addition, the trailing edge of the cannula body distal end is radiused to prevent coring or tearing of tissue.

As set forth above as to Claim 9, Utterberg does not suggest or teach that the "first angle of the **leading edge** is larger than the second angle of the **trailing edge**" as recited in Claim 9 of the present invention. Furthermore, Utterberg does not teach or suggest that the trailing edge of the cannula body distal end is radiused to prevent coring or tearing of tissue. Accordingly, Claim 11 should be allowable.

Response to 35 U.S.C. §103 Rejections:

Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Muir in view of Utterberg.

Claim 17 recites the cannula of Claim 9, including a leaf spring fixed within the cannula body for retaining an implant. Claim 17 is allowable for at least the same reasons as Claim 9.

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Harris. Claim 7 recites a trocar according to Claim 1, wherein the obturator has a tapered distal

end to prevent ejection of the spring element from the cannula when the obturator is moved distally to eject the implant from the cannula. Claim 7 is allowable for at least the same reasons as Claim 1.

New Claims 21-25:

New Claims 21-25 have been added to further define the protection to which Applicant is entitled. Claim 21 recites a trocar comprising a cannula for receiving an implant and inserting the implant into an animal; a spring element received within the cannula, the spring element formed from a sheet with a continuous cut forming a T-shaped leaf spring; an obturator for delivering the implant from the cannula into the animal; wherein the leaf spring retains the implant inside the cannula by applying a frictional force against the implant sufficient to prevent the implant from sliding out of the cannula under a weight of the implant. Claims 22-25 are dependent from Claim 21.

Since none of the art cited by the Examiner teaches or suggests a trocar having a spring element received within the cannula, wherein the spring element is formed from a sheet with a continuous cut forming a T-shaped leaf spring, Claims 21-25 should be allowable.

Conclusion:

Attached hereto is a marked-up version of the changes made to a claim by the current amendment. The attached pages is captioned "Version with markings to show changes made."

It is respectfully submitted that the claims are presently in condition for immediate allowance, and such action is requested. If, however, any matters remain that can be clarified by Examiner's Amendment, the Examiner is cordially invited to contact the undersigned by telephone at the number below. In the event that there are any questions concerning the amendments or the application in general, the Examiner is respectfully urged to contact the undersigned so that prosecution may be expedited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 76 m 2
Kirk M. Nuzum
Registration No. 38,983

P.O. Box 1404
Alexandria, Virginia 22313-1404
(650) 854-7400

Date: December 12, 2001

Version with Markings to Show Changes Made

In the claims:

1. (Amended) A trocar comprising:

a cannula for receiving an implant and inserting the implant into an animal,
the cannula having a sharp tissue penetrating distal end;

a spring element received entirely within the cannula, the spring element having a leaf spring for retaining the implant inside the cannula, the leaf spring applying a frictional force against the implant sufficient to prevent the implant from sliding out of the cannula under a weight of the implant; and

an obturator for delivering the implant from the cannula into the animal.